



Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

AREA 2, GROUP 1a CLOSURE PROJECT

Buildings 308B and 308D

REVISION 0

January 21, 2003

**CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02**

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AREA 2, GROUP 1a CLOSURE PROJECT

Buildings 308B and 308D

REVISION 0

January 21, 2003

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ABBREVIATIONS/ACRONYMS

| | |
|---------------------|---|
| ACM | Asbestos containing material |
| Be | Beryllium |
| CDPHE | Colorado Department of Public Health and the Environment |
| CERCLA | Comprehensive Emergency Response, Compensation and Liability Act |
| DCGL _{EMC} | Derived Concentration Guideline Level – elevated measurement comparison |
| DCGL _w | Derived Concentration Guideline Level – Wilcoxon Rank Sum Test |
| D&D | Decontamination and Decommissioning |
| DDCP | Decontamination and Decommissioning Characterization Protocol |
| DOE | U.S. Department of Energy |
| DPP | Decommissioning Program Plan |
| DQA | Data quality assessment |
| DQOs | Data quality objectives |
| EPA | U.S. Environmental Protection Agency |
| FDPM | Facility Disposition Program Manual |
| HVAC | Heating, ventilation, air conditioning |
| HSAR | Historical Site Assessment Report |
| IHSS | Individual Hazardous Substance Site |
| IWCP | Integrated Work Control Package |
| K-H | Kaiser-Hill |
| LBP | Lead-based paint |
| LLW | Low-level waste |
| MARSSIM | Multi-Agency Radiation Survey and Site Investigation Manual |
| MDA | Minimum detectable activity |
| MDC | Minimum detectable concentration |
| NORM | Naturally occurring radioactive material |
| NRA | Non-Rad-Added Verification |
| OSHA | Occupational Safety and Health Administration |
| PARCC | Precision, accuracy, representativeness, comparability and completeness |
| PCBs | Polychlorinated Biphenyls |
| PDS | Pre-demolition survey |
| QC | Quality Control |
| RCRA | Resource Conservation and Recovery Act |
| RFCA | Rocky Flats Cleanup Agreement |
| RFETS | Rocky Flats Environmental Technology Site |
| RFFO | Rocky Flats Field Office |
| RLC | Reconnaissance Level Characterization |
| RLCR | Reconnaissance Level Characterization Report |
| RSP | Radiological Safety Practices |
| SVOCs | Semi-volatile organic compounds |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TSA | Total surface activity |
| VOCs | Volatile organic compounds |

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and compliant disposition and waste management of Buildings 308B and 308D. Although these facilities were anticipated to be Type 2 facilities, a PDS characterization was performed due to newly acquired information about the wastes used and stored in these facilities, and the low potential for residual contamination in or on facility surfaces. Therefore, based on this project decision and discussions with CDPHE, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) requirements. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., floors (slabs), walls, ceilings and roofs], with the exception of the inaccessible portions of the pit under 308D. The 308D pit will be surveyed and sampled as necessary prior to demolition and disposal. Environmental media beneath and surrounding the facilities were not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report (HAS) for Area 2 Group 1 facilities, dated May 2002.

Results indicate that no radiological contamination exists in excess of the PDSP unrestricted release limits of DOE Order 5400.5. After visual and tactile inspections of Buildings 308B and 308D, no building materials suspected of containing asbestos were located. All beryllium smear sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Both 308B and 308D were used to handle water collected in the OU4 interceptor trench. This water was moved to 308 modular storage tanks and then to B374 for flash evaporation treatment. As part of the facility turnover process, the 308 modular storage tanks were sampled in August 2002, and found not to contain any RCRA contaminants. Therefore, it can be inferred that buildings 308B and 308D are also free of RCRA contamination. The data collected from the 308 modular storage tanks is located in the RISS Characterization Project Files for this RLCR. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable. All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

Based upon this RLCR, Buildings 308B and 308D are considered to be Type 1 facilities. To ensure that the facilities remain free of contamination and that RLC data remain valid, isolation controls have been established, and the facilities have been posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of Buildings 308B and 308D. Although these facilities were anticipated to be Type 2 facilities, a PDS characterization was performed due to newly acquired information about the wastes used and stored in these facilities, and the low potential for residual contamination in or on facility surfaces. Therefore, based on this project decision and discussions with CDPHE, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) requirements. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., floors (slabs), walls, ceilings and roofs], with the exception of the inaccessible portions of the pit under 308D. The 308D pit will be surveyed and sampled as necessary prior to demolition and disposal. Environmental media beneath and surrounding the facilities were not within the scope of this RLC Report (RLCR) and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these are Buildings 308B and 308D. The locations of these facilities are shown in Attachment A. These facilities no longer support the RFETS mission and need to be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facilities can be removed, a Pre-Demolition Survey (PDS) must be conducted; this document presents the PDS results. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report for Area 2, Group 1 facilities, dated May 2002.

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. A RLC is performed on Type 1 facilities prior to building demolition in order to define the final radiological and chemical conditions of the facility. Final conditions are compared with the release limits for radiological and non-radiological contaminants. RLC results enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the final radiological and chemical conditions of Buildings 308B and 308D. Environmental media beneath and surrounding the facilities are not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Pre-Demolition survey Plan for D&D Facilities (MAN-127-PDSP.) Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

Facility-specific Historical Site Assessments (HSAs) were conducted to understand facility histories and related hazards. The assessments consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSAs were documented in a facility-specific Historical Site Assessment Report (HSAR) for buildings 308B and 308D (refer to Attachment B). In summary, the HSAR identified limited potential for radiological and chemical hazards, except the potential for PCBs in paint and light ballast.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Buildings 308B and 308D were characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files).

Two radiological survey packages were developed; one per facility, each including interior and exterior locations. The two survey packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, Radiological Data Summary and Survey Maps. The radiological survey unit packages are maintained in the RISS Characterization Project files.

98 TSA measurements (30 random, 30 biased, 32 equipment and 6 QC), 92 RSA measurements (30 random, 30 biased and 32 equipment) were collected. A 10% scan survey was performed within each survey unit as indicated on the blue shaded area of the survey maps.

The initial survey at location 11 on Building 308D indicated elevated activity, this location was allowed to decay and re-surveyed. Re-survey results showed that location 11 meets the PDSP unrestricted release limits for both transuranics and uranium and is the value reported in the TSA Data Summary. Refer to the applicable data summaries in Attachment C, Radiological Data Summary and Survey Maps, for details on the investigation results.

The PDS confirmed that buildings 308B and 308D do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Since lower portions of the 308D under-building pit were inaccessible during the RLC due to ground water infiltration, the 308D pit will be surveyed and sampled as necessary prior to demolition and disposal. Isolation control postings are displayed on affected structures to ensure no radioactive materials are introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Buildings 308B and 308D were characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in the facilities. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Package (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers. The contaminants of concern included asbestos and beryllium. Refer to Attachment D, Chemical Data Summaries and Sample Maps, for details on sample results and sample locations.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in the aforementioned buildings in accordance with the PDSP. A CDPHE-certified asbestos inspector conducted the inspection and sampling in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspector.

After visual and tactile inspections of Buildings 308B and 308D, no building materials suspected of containing asbestos were located. Therefore, no samples were taken, and no data were entered in Attachment D.

4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, these buildings were anticipated Type 2 facilities. There was not adequate historical and process knowledge to conclude that beryllium was not used or stored in these buildings. Therefore, biased beryllium sampling was performed in accordance with the PDSP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999*. Biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

All beryllium smear sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Beryllium laboratory sample data and location maps are contained in Attachment D, "Chemical Data Summaries and Sample Maps."

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on the HSAR, interviews and facility walkdowns, both Building 308B and 308D were used to handle water collected in the OU4 interceptor trench. This water was moved to 308 modular storage tanks by pumps in 308D, and the pumps in 308B moved the water from the 308 tanks to B374 for flash evaporation treatment. The 308 modular storage tanks were sampled as part of the facility turnover process in August 2002, and found not to contain any RCRA contaminants. Therefore, it can be inferred that Buildings 308B and 308D are also free of RCRA contamination. As a result, additional RCRA/CERCLA constituent sampling was not performed in these facilities during the RLC effort.

Sampling for lead in paint in Buildings 308B and 308D was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

The buildings may contain some RCRA regulated items such as, mercury containing gauges, circuit boards, and lead-acid batteries. These items will be removed prior to demolition and managed in accordance with the Colorado Hazardous Waste Act.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR, interviews and walk downs of Buildings 308B and 308D, no PCB-containing equipment or processes were ever present in any of the buildings, making the potential for PCB contamination highly unlikely. Therefore, PCB sampling was not performed in these facilities.

Based on the age of B308D (constructed prior to 1980), paints used may contain PCBs, and painted surfaces will need to be disposed of PCB Bulk Product Waste. Painted concrete surfaces can be used as backfill on site in accordance with approval received from EPA in November 2001 (letter from K. Clough, US EPA Region 8, to J. Legare, DOE RFFO, 8EPR-F, Approval of the Risk-Based Approach for Polychlorinated Biphenyls (PCB)-Based Painted Concrete), provided the concrete meets the unrestricted-release criteria outlined in the Concrete Recycling RSOP.

5 PHYSICAL HAZARDS

Physical hazards associated with Buildings 308B and 308D consist of hazards common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. Other than the approximately 15 foot deep pit under Building 308D, there are no unique hazards associated with the facilities. The facilities have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Buildings 308B and 308D, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys;
- ◆ the *types* of samples and surveys;
- ◆ the sampling/survey process as implemented "in the field"; and,
- ◆ the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment E.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Buildings 308B and 308D will generate a variety of wastes. Estimated waste types and waste volumes are presented below by facility. All wastes can be disposed of as sanitary waste, except PCB Bulk Product Waste, and any hazardous-waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, leaded glass and lead-acid batteries). There is no radioactive, asbestos or beryllium material present in either facility. PCB ballast, and hazardous waste items will be removed prior to demolition and disposed of pursuant to waste management procedures.

| Waste Volume Estimates and Material Types, Buildings 308B and 308D | | | | | | | |
|--|---------------------|-----------------|------------------|--------------------------------------|--------------------------|----------------|------------------------|
| Facility | Concrete (cu ft) | Wood (cu ft) | Metal (cu ft) | Corrugated Sheet Metal (cu ft) | Wall Board (cu ft) | ACM (cu ft) | Other Waste (cu ft) |
| 308B | 100 | 0 | 100 | 0 | 0 | 0 | None |
| 308D | 950 | 0 | 25 | 0 | 0 | 0 | Fiberglass - 100 |

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Buildings 308B and 308D are classified as RFCA Type 1 facilities pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC data.

The RLC for Buildings 308B and 308D was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. These facilities do not contain radiological, asbestos or beryllium contaminants. Any PCB ballasts or hazardous waste items will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable. All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete. Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

To ensure that the Type 1 facilities remain free of contamination and that RLC data remain valid, isolation controls have been established, and the facilities are posted accordingly.

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9 REFERENCES








- DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment."
- EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.
- K-H, 1999. Decommissioning Program Plan, June 21, 1999.
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.
- MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 3, April 23, 2001.
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 0, April 23, 2001.
- MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual (NUREG-1575, EPA 402-R-97-016).
- PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.
- PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.
- PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.
- PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999.
- PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999.
- RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.
- RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.
- RFCA Standard Operation Protocol for Recycling Concrete, September 28, 1999.
- RFETS Historical Site Assessment Report for Area 2, Group 1, May 2002.

ATTACHMENT A

Facility Location Map

Area 2 Group 1 308B & 308D

Standard Map Features

-  Buildings and other structures
-  Solar Evaporation Ponds (SEPs)
-  Lakes and ponds
-  Streams, ditches, or other drainage facilities
-  Fences and other barriers
-  Paved roads
-  Dirt roads

DATA SOURCE BASE FEATURES:

Buildings, fences, hydrography, roads and other structures from 1994 aerial photo data captured by GeoEye Inc., Las Vegas. Digitized from the orthorectified 1/96



Scale = 1 : 12,460
1 inch represents approximately 1028 feet
2 1/4" 1/2" 1/4" 1/8" 1/16"

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

as of 2000-07-07

Prepared by:

DynCorp
THE ART OF TECHNOLOGY

Prepared for:

MAP ID: FY 2002

KIM
KIMBERLY
JANUARY 14, 2003

ATTACHMENT B

Historical Site Assessment Report

**D&D RISS Facility Characterization
Historical Site Assessment Report
May, 2002 Rev. 0**

Facility ID: Area 2 Group 1 - Buildings 705, 964, 308B, and 308D.

Anticipated Facility Type (1, 2, or 3): Buildings 705, 964, 308B, and 308D are anticipated Type 2 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with:

D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and

Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Building 964

Building 964 is a 5000 sq. ft. building and is currently identified as RCRA Unit 24. Building 964 was originally constructed in the mid 1960s and was used for general storage by a variety of site construction contractors. In 1986 the structure was modified for use as RCRA permitted Unit 24. These modifications include the installation of a spill containment system and the application of an epoxy concrete sealant. Ramps were installed to allow movement of containers in and out of the secondary containment system. Building 964 is a non-insulated corrugated metal structure mounted to a wooden frame. The structure has an asphalt shingle roof and is built on a concrete slab poured on grade.

Building 964 is serviced by the following utilities: Wall-mounted fire extinguishers provide fire protection.

Building 705

Building 705 is the old R&D ceramics laboratory and coatings laboratory constructed in 1966. Building 705 is a 3700 sq. ft. single-story structure with a high bay laboratory area. Building 705 has had two additions since its original construction. The first addition, in 1969, was the addition of the measurement room (Room 103) south of the original structure. The second addition, in 1975, was the addition of the two story mechanical room east of the original structure. In 1991 the sanitary floor drains in the laboratory areas were grouted. Building 705 is not connected to the waste process system.

Building 705 is constructed with concrete block walls, a poured in place concrete slab floor and a metal roof with built-up roofing.

Building 705 is serviced by the following utilities: electric, plant sanitary, plant water, and plant steam. Fire protection is provided by overhead sprinkler system and wall mounted fire extinguishers. The building originally had hydrogen, helium, and nitrogen and oxygen gas supplied by tanks located on the exterior of the south side of the building. These tanks have been removed.

Building 308B

Building 308 is the Modular Storage Tank Pump House and was installed in 1992. Building 308B is a self contained prefabricated 65 sq. ft. metal structure, which houses two pumps used to move waste water from the Modular Storage Tanks to Building 371. Building 308B has a metal roof, floor, and walls and is a portable unit bolted to a concrete slab.

Building 308B is serviced by the following utilities; electric, and fire protection is provided by wall-mounted fire extinguishers.

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Building 308D

Building 308D is the Central Sump Pump House and was installed in 1975. Building 308D is a 65 sq. ft, self-contained fiberglass enclosure, which contains two pumps used to pump interceptor trench water from the concrete collection sump located under Building 308D to the 308B modular tanks. The pump house is a portable fiberglass unit bolted to the top of a concrete sump. The concrete sump is approximately 8 feet wide by 8 feet long by 10 feet deep and constructed with a concrete floor, roof and walls.

Building 308D is serviced by the following utilities; electric.

Historical Operations

Building 964

Building 964 was originally constructed as a general construction storage building and was used by a variety of construction contractors on site. In 1986 the building was coveted to RCRA Storage Unit 24. The building currently stores solid wastes, but on occasions liquid waste has been stored in the building and was placed in metal secondary containment pans. Building 964 primarily stores solidified bypass sludge from Building 371. There are no documented spills in Building 964.

Building 964 is located within the boundary of IHSS 000-101 and 900-176. See the Environment Restoration concerns section below for more detail.

Building 705

Building 705 was originally used as a ceramics R&D laboratory and was later used as a coating laboratory to test a variety of coating methodologies. The ceramics R & D laboratory shaped, formed and heated experimental ceramic parts. The coating R & D laboratory experimented with vapor metal deposition coatings. Building 705 was also used to train site personnel to used the waste stabilization treatment process. This was a training activity, which utilized clean glove boxes, and did not involve any radiological or hazardous material. Operation in Building 705 stopped in 1998.

As an R&D facility, several equipment changes and ventilation modification were performed on the building during its lifetime. Some of the equipment that has been used in Building 705 include vapor hoods, furnaces, ovens, and an X-ray unit.

Building 705 was originally plumbed into the sanitary waste system, in 1991 the drains in the floor of the laboratory areas were grouted to prevent any releascs to the sanitary waste system. Drains outside of the laboratory area were not grouted.

In 2001 the building went through an equipment strip-out under the hazard reduction process. All equipment has been removed from the building. No evidence of building radiological contamination was found during this activity.

No internal walkdown was performed due to medical monitoring and training requirements associated with Building 705 being posted as a Beryllium controlled area.

**D&D RISS Facility Characterization
Historical Site Assessment Report
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Building 308B

Building 308B is the pump house for the three temporary modular storage tanks associated with the OU-4 interceptor trench. Ground water contamination resulting from releases from the solar ponds are collected by the OU-4 interceptor trench and pumped to the modular storage tanks 308B-A, 308B-B, and 308B-C. The contaminated ground water is pump to Building 371 for flash evaporation treatment. In the Site SAR, Building 308B is classified as an industrial facility because the groundwater managed by the system has only trace amounts of chemical and radiological contamination. In 1996, the hillside shifted and the pipe between the tanks and the pump house broke. This incident caused the containment system in the pump house to fill with water and several hundred gallons of water was release to the ground. The release did not constitute a reportable quantity.

Building 308D

Building 308D is the Central Sump Pump House for the OU-4 interceptor trench. Ground water contamination resulting from releases from the solar ponds are collected by the OU-4 interceptor trench in the concrete sump under Building 308D the contaminated ground water is pumped to the modular storage tanks 308B-A, 308B-B, and 308B-C. In the Site SAR, Building 308D is classified as an industrial facility because the groundwater managed by the system has only trace amounts of chemical and radiological contamination. In the past, the pumps and associated piping frequently leaked both inside building 308D and the area around the Building 308D. These leaks did not constitute a reportable quantity. The 308D pump house and sump are currently inactive and the sump contains approximately 3 feet of water.

Current Operational Status

Buildings 705 is inactive and currently being prepared for D&D. Building 964 and 308B are currently operational. Building 308D is not currently operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:

Building 705 is posted as potentially containing asbestos. Building 308B, 308D and 964 have no asbestos postings. None of the buildings in this HSA have had a comprehensive asbestos survey.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:

Building 705 is posted as a beryllium control area and has several rooms listed on the List of known Beryllium areas (Rooms 100, 100A, 102, and 206). Building 964, 308B and 308D are not on the list of known Beryllium areas.

Summarize any recent Be sampling results:

No resent Be samples collected on any of these facilities.

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Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):

Due to the age of construction of some of the facilities in this HSA, lead in paint and lead in electrical equipment may be a concern. Lead shielding was used in Building 705, but was removed during hazard reduction activities in 2001. Building 308B, 308D and 964 were not known to have used lead shielding.

See the section below for RCRA/CERCLA constituents for any lead in waste stream references related to these buildings.

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):

Building 964 is RCRA Unit 24 and will be closed in accordance with the RCRA Part B Permit. This unit primarily stores solidified bypass sludge from building 371. There are no documented releases from this storage unit. Building 308B, 308D and 705 are not associated with any RCRA Unit. Building 308B and 308 D pumped OU-4 groundwater. This groundwater had very low levels of contamination, primarily nitrates, metals and some uranium.

The Building 705 coatings laboratory primarily performed research with beryllium, but also used a variety of other metals in a more limited extent (i.e. chromium, cadmium, hafnium, lead, lutetium, nickel, magnesium, and molybdenum, silver). Miscellaneous laboratory chemicals were also used (i.e. acids, bases, solvents)

Building 308B and 308D pump houses were used to pump ground water from the trench to the 308B modular storage tanks and eventually to Building 371 for flash evaporation treatment. The water handled by these buildings contained trace amounts of chemical contamination (mostly nitrates and some metals).

See the Building specific WSRIC for a more detailed listing of the waste streams associated with each building addressed in this HSA.

Describe any potential, likely, or known spill locations (and sources, if any):

Building 964 has no documented spills, but is located within the boundary of two IHSS. (See the Environmental Restoration Concerns section below). Building 705 has no documented spills. Building 308B has had one release in 1996 (see process history section). Building 308D frequently had small volume leaks from its piping and pumps (see process history section). Due to the low concentration of contamination in the water, these leaks did not constitute a reportable release. These incidents were reported to the state as a best management practice.

Describe methods in which spills were mitigated, if any:

Building 964 and 705 had no documented releases. The 1996 release from Building 308B was pumped to a portable tank and disposed of at Building 371.

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PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):

Due to the age of some of these facilities, there may be a concern with PCBs in paint, light ballasts, and electrical equipment. PCBs were not known to have been regularly handled in any of these facilities.

Describe any potential, likely, or known spill locations (and sources, if any):

No known PCB spills occurred in any of the facilities addressed in this HSA.

Describe methods in which spills were mitigated, if any:

No known PCB spills occurred in any of the facilities addressed in this HSA.

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Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:

Building 964 is the only building in this HSA that is currently radiologically posted. Building 964 is used primarily to store solidified bypass sludge (low-level mixed waste) from building 371.

Building 705 primarily performed non-radiological R&D activities. However, depleted uranium was used in a few special projects. No known building contamination resulted from these special projects. No equipment contamination or building contamination was found during the hazard reduction activities performed on Building 705 during 2001.

Building 308B and 308D were used to pump ground water from the QU-4 interceptor trench to the 308B modular storage tanks and eventually to Building 371 for flash evaporation treatment. The water contained trace amounts of radioactive contamination (mostly uranium). The water is not regulated as a radioactive material.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):

Building 964 has had no documented spills, but is located within the boundary of two IHSS. (See the Environmental Restoration Concerns section below).

Building 705 had no known spills.

Building 308B has had one release in 1996 (see process history section). Building 308D frequently had small volume leaks from its piping and pumps (see process history section). Due to the low concentration of contamination in the water, these leaks did not constitute a reportable release. These incidents were reported to the state as a best management practice.

Additional, release information is documented in the IHSS, PAC, and UBC section below.

Describe methods in which spills were mitigated, if any:

None

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):

The primary Isotope of concern includes, but is not limited to depleted uranium. Other than sealed sources, there were no known mixed fission products or pure beta emitters used in any of the facilities addressed in the HSA.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):

See section below for information on IHSSs PACs, and UBCs.

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Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):

Building 308B is located near, the following active PACs;

- 1) PAC NE- 1407 "771 Hillside Sludge Release", NFA Recommendation Approved 1999.

Building 308D is located near the following PAC:

- 1) PAC NE 1409 "Modular Tanks and 910 Treatment System Spill", NFA Recommendation Approved 2001.

Building 964 is associated with or located near the following IHSSs.

- 1) IHSS 900-176 "S&W Contractor Yard", Active.
- 2) IHSS 000-101 "Solar Evaporation Ponds", Active.

Building 705 and are not associated with any IHSSs, PACs, and UBCs. None of the facilities in this HSA have UBCs.

Sanitary drains are covered, site wide, in PAC 000-500 and storm drains are covered, site wide, in PAC 000-505.

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):

None

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. Building 705 WSRIC, (Building 308B, 308D and 964 do not have WSRICs). In addition, a facility walkdown and interviews were performed.

Waste Volume Estimates and Material Types

| Facility | Concrete (cu ft) | Wood (cu ft) | Metal (cu ft) | Corrugated Sheet Metal (cu ft) | Wall Board (cu ft) | ACM (cu ft) | Other Waste (cu ft) |
|---------------|---------------------|-----------------|------------------|--------------------------------------|-----------------------|----------------|------------------------|
| Building 705 | 5500 | 0 | 400 | 0 | 1100 | TBD | None |
| Building 964 | 2500 | 600 | 300 | 2400 | 0 | TBD | None |
| Building 308B | 100 | 0 | 100 | 0 | 0 | TBD | None |
| Building 308D | 950 | 0 | 25 | 0 | 0 | TBD | Fiberglass - 100 |

Further Actions

Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):

Begin the RLC/PDS process.

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Note:

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to review additional documentation and perform additional interviews. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. However, this report will not be amended, and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

Prepared By: Doug Bryant / /s/ / May 2002
Name Signature Date

ATTACHMENT C

Radiological Data Summaries and Survey Maps

SURVEY UNIT 308B-A-001
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B308B (Interior & Exterior)

308B-A-001
PDS Data Summary

| Total Surface Activity Measurements | | | Removable Activity Measurements | | |
|-------------------------------------|-----------------|-------------------------|----------------------------------|-----------------|-------------------------|
| | 45 | 45 | | 45 | |
| | Number Required | Number Obtained | | Number Required | Number Obtained |
| MIN | -11.6 | dpm/100 cm ² | MIN | -1.2 | dpm/100 cm ² |
| MAX | 66.2 | dpm/100 cm ² | MAX | 2.4 | dpm/100 cm ² |
| MEAN | 13.5 | dpm/100 cm ² | MEAN | -0.2 | dpm/100 cm ² |
| STD DEV | 17.4 | dpm/100 cm ² | STD DEV | 0.8 | dpm/100 cm ² |
| TRANSURANIC DCGL _w | 100 | dpm/100 cm ² | TRANSURANIC DCGL _w | 20 | dpm/100 cm ² |

**SURVEY UNIT 308B-A-001
TSA - DATA SUMMARY**

| | | | | | |
|-------------------------------|---------|---------|---------|----------|----------|
| Manufacturer: | NE Tech | NE Tech | NE Tech | NE Tech | NE Tech |
| Model: | DP-6 | DP-6 | DP-6 | DP-6 | DP-6 |
| Instrument ID#: | 1 | 3 | 5 | 6 | 7 |
| Serial #: | 1513 | 1241 | 3106 | 3104 | 3125 |
| Cal Due Date: | 4/20/03 | 5/11/03 | 4/4/03 | 5/11/03 | 4/21/03 |
| Analysis Date: | 12/4/02 | 12/4/02 | 12/4/02 | 12/13/02 | 12/13/02 |
| Alpha Eff. (c/d): | 0.220 | 0.213 | 0.230 | 0.214 | 0.206 |
| Alpha Bkgd (cpm) | 3.3 | 1.0 | 2.1 | 0.7 | 1.3 |
| Sample Time (min) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| LAB Time (min) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| MDC (dpm/100cm ²) | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 |

| | | |
|-------------------------------|----------|----------|
| Manufacturer: | NE Tech | NE Tech |
| Model: | DP-6 | DP-6 |
| Instrument ID#: | 8 | 13 |
| Serial #: | 3105 | 3106 |
| Cal Due Date: | 1/17/03 | 4/4/03 |
| Analysis Date: | 12/17/02 | 12/18/02 |
| Alpha Eff. (c/d): | 0.212 | 0.230 |
| Alpha Bkgd (cpm) | 1.3 | 2.3 |
| Sample Time (min) | 1.5 | 1.5 |
| LAB Time (min) | 1.5 | 1.5 |
| MDC (dpm/100cm ²) | 48.0 | 48.0 |

| Sample Location Number | Instrument ID#: | Sample Gross Counts (cpm) | Sample Gross Activity (dpm/100cm ²) | LAB Gross Counts (cpm) | LAB Gross Activity (dpm/100cm ²) | Sample Net Activity (dpm/100cm ²) ^{1,2} |
|------------------------|-----------------|---------------------------|---|------------------------|--|--|
| 1 | 8 | 2.7 | 12.7 | 1.3 | 6.1 | -1.9 |
| 2 | 6 | 12.0 | 56.1 | 3.3 | 15.4 | 41.4 |
| 3 | 7 | 10.0 | 48.5 | 5.3 | 25.7 | 33.9 |
| 4 | 6 | 13.3 | 62.1 | 3.3 | 15.4 | 47.5 |
| 5 | 8 | 3.3 | 15.6 | 1.3 | 6.1 | 0.9 |
| 6 | 7 | 5.3 | 25.7 | 1.3 | 6.3 | 11.1 |
| 7 | 5 | 0.7 | 3.0 | 6.7 | 29.1 | -11.6 |
| 8 | 8 | 3.3 | 15.6 | 1.3 | 15.6 | 0.9 |
| 9 | 5 | 6.0 | 26.1 | 2.7 | 11.7 | 11.4 |
| 10 | 7 | 6.7 | 32.5 | 2.0 | 9.7 | 17.9 |
| 11 | 6 | 17.3 | 80.8 | 2.7 | 12.6 | 66.2 |
| 12 | 13 | 9.0 | 39.1 | 4.0 | 17.4 | 24.5 |
| 13 | 8 | 4.7 | 22.2 | 2.0 | 9.4 | 7.5 |
| 14 | 8 | 2.0 | 9.4 | 3.3 | 15.6 | -3.2 |
| 15 | 13 | 6.0 | 26.1 | 4.7 | 20.4 | 11.4 |
| 16 | 1 | 7.3 | 33.2 | 5.3 | 24.1 | 18.5 |
| 17 | 1 | 4.0 | 18.2 | 5.3 | 24.1 | 3.5 |
| 18 | 1 | 6.7 | 30.5 | 6.7 | 30.5 | 15.8 |
| 19 | 1 | 6.7 | 30.5 | 4.7 | 21.4 | 15.8 |
| 20 | 1 | 4.0 | 18.2 | 6.0 | 27.3 | 3.5 |
| 21 | 1 | 6.7 | 30.5 | 6.7 | 30.5 | 15.8 |
| 22 | 1 | 2.0 | 9.1 | 4.0 | 18.2 | -5.6 |
| 23 | 1 | 3.3 | 15.0 | 2.7 | 12.3 | 0.3 |
| 24 | 3 | 3.3 | 15.5 | 2.7 | 12.7 | 0.8 |
| 25 | 3 | 4.7 | 22.1 | 2.7 | 12.7 | 7.4 |
| 26 | 3 | 12.0 | 56.3 | 2.7 | 12.7 | 41.7 |
| 27 | 3 | 6.0 | 28.2 | 4.7 | 22.1 | 11.5 |
| 28 | 3 | 5.3 | 24.9 | 2.7 | 12.7 | 10.2 |
| 29 | 5 | 4.7 | 20.4 | 2.7 | 11.7 | 5.8 |
| 30 | 5 | 4.0 | 17.4 | 2.0 | 8.7 | 2.7 |

**SURVEY UNIT 308B-A-001
TSA - DATA SUMMARY**

| Sample Location Number | Instrument ID#: | Sample Gross Counts (cpm) | Sample Gross Activity (dpm/100cm2) | LAB Gross Counts (cpm) | LAB Gross Activity (dpm/100cm2) | Sample Net Activity (dpm/100cm2) ^{1,2} |
|------------------------|-----------------|---------------------------|------------------------------------|------------------------|---------------------------------|---|
| 31 | 8 | 4.0 | 18.9 | 2.7 | 12.7 | 4.2 |
| 32 | 8 | 5.3 | 25.0 | 2.0 | 9.4 | 10.3 |
| 33 | 8 | 3.3 | 15.6 | 2.0 | 9.4 | 0.9 |
| 34 | 8 | 5.3 | 25.0 | 4.3 | 20.3 | 10.3 |
| 35 | 8 | 7.3 | 34.4 | 4.3 | 20.3 | 19.8 |
| 36 | 13 | 15.8 | 68.7 | 1.6 | 7.0 | 54.0 |
| 37 | 13 | 6.7 | 29.1 | 1.7 | 7.4 | 14.5 |
| 38 | 13 | 2.0 | 8.7 | 2.0 | 8.7 | -6.0 |
| 39 | 13 | 6.0 | 26.1 | 4.0 | 17.4 | 11.4 |
| 40 | 13 | 16.0 | 69.6 | 4.0 | 17.4 | 54.9 |
| 41 | 13 | 4.1 | 17.8 | 2.0 | 8.7 | 3.2 |
| 42 | 13 | 4.0 | 17.4 | 2.0 | 8.7 | 2.7 |
| 43 | 13 | 4.7 | 20.4 | 2.0 | 8.7 | 5.8 |
| 44 | 13 | 6.7 | 29.1 | 0.7 | 3.0 | 14.5 |
| 45 | 13 | 3.7 | 16.1 | 0.7 | 3.0 | 1.4 |

1 - Average LAB used to subtract from Gross Sample Activity

| | |
|-------------------------------|--------------------|
| 14.7 | Sample LAB Average |
| MIN | -11.6 |
| MAX | 66.2 |
| MEAN | 13.5 |
| SD | 17.4 |
| Transuranic DCGL _w | 100 |

QC Measurements

| | | | | | | |
|-------|---|-----|------|-----|------|------|
| 4 QC | 8 | 10 | 47.2 | 4 | 18.9 | 26.1 |
| 9 QC | 8 | 8.7 | 41.0 | 4.7 | 22.2 | 20.0 |
| 10 QC | 8 | 14 | 66.0 | 4.7 | 27.2 | 45.0 |

1 - Average QC LAB used to subtract from Gross Sample Activity

| | |
|-------------------------------|----------------|
| 21.1 | QC LAB Average |
| MIN | 20.0 |
| MAX | 45.0 |
| MEAN | 30.3 |
| Transuranic DCGL _w | 100 |

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**SURVEY UNIT 308B-A-001
RSC - DATA SUMMARY**

| | | | | |
|------------------------------------|----------|----------|----------|----------|
| Manufacturer: | Eberline | Eberline | Eberline | Eberline |
| Model: | SAC-4 | SAC-4 | SAC-4 | SAC-4 |
| Instrument ID#: | 9 | 10 | 11 | 12 |
| Serial #: | 959 | 833 | 963 | 952 |
| Cal Due Date: | 1/18/03 | 2/28/03 | 1/3/03 | 1/31/03 |
| Analysis Date: | 12/17/02 | 12/17/02 | 12/17/02 | 12/17/02 |
| Alpha Eff. (c/d): | 0.33 | 0.33 | 0.33 | 0.33 |
| Alpha Bkgd (cpm) | 0.4 | 0.2 | 0.1 | 0.1 |
| Sample Time (min) | 2 | 2 | 2 | 2 |
| Bkgd Time (min) | 10 | 10 | 10 | 10 |
| MDC (dpm/100cm²) | 9.0 | 9.0 | 9.0 | 9.0 |

| | | | | |
|------------------------------------|----------|----------|----------|----------|
| Manufacturer: | Eberline | Eberline | Eberline | Eberline |
| Model: | SAC-4 | SAC-4 | SAC-4 | SAC-4 |
| Instrument ID#: | 14 | 15 | 16 | 17 |
| Serial #: | 952 | 963 | 833 | 959 |
| Cal Due Date: | 1/31/03 | 1/3/03 | 2/28/03 | 1/18/03 |
| Analysis Date: | 12/18/02 | 12/18/02 | 12/18/02 | 12/18/02 |
| Alpha Eff. (c/d): | 0.33 | 0.33 | 0.33 | 0.33 |
| Alpha Bkgd (cpm) | 0.1 | 0.1 | 0.2 | 0.1 |
| Sample Time (min) | 2 | 2 | 2 | 2 |
| Bkgd Time (min) | 10 | 10 | 10 | 10 |
| MDC (dpm/100cm²) | 9.0 | 9.0 | 9.0 | 9.0 |

| Sample Location Number | Instrument ID# | Gross Counts (cpm) | Net Activity (dpm/100 cm ²) |
|------------------------|----------------|--------------------|---|
| 1 | 11 | 0 | -0.3 |
| 2 | 9 | 0 | -1.2 |
| 3 | 10 | 0 | -0.6 |
| 4 | 11 | 1 | 1.2 |
| 5 | 12 | 1 | 1.2 |
| 6 | 9 | 0 | -1.2 |
| 7 | 10 | 0 | -0.6 |
| 8 | 9 | 0 | -1.2 |
| 9 | 14 | 0 | -0.3 |
| 10 | 10 | 0 | -0.6 |
| 11 | 11 | 0 | -0.3 |
| 12 | 14 | 0 | -0.3 |
| 13 | 12 | 0 | -0.3 |
| 14 | 9 | 0 | -1.2 |
| 15 | 14 | 0 | -0.3 |
| 16 | 9 | 1 | 0.3 |
| 17 | 10 | 1 | 0.9 |
| 18 | 11 | 0 | -0.3 |
| 19 | 12 | 0 | -0.3 |
| 20 | 9 | 0 | -1.2 |
| 21 | 10 | 2 | 2.4 |
| 22 | 11 | 0 | -0.3 |
| 23 | 12 | 0 | -0.3 |

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**SURVEY UNIT 308B-A-001
RSC - DATA SUMMARY**

| Sample Location Number | Instrument ID# | Gross Counts (cpm) | Net Activity (dpm/100 cm ²) |
|------------------------|----------------|-------------------------------|---|
| 27 | 12 | 0 | -0.3 |
| 28 | 9 | 0 | -1.2 |
| 29 | 10 | 1 | 0.9 |
| 30 | 11 | 1 | 1.2 |
| 31 | 10 | 0 | -0.6 |
| 32 | 11 | 0 | -0.3 |
| 33 | 12 | 0 | -0.3 |
| 34 | 9 | 0 | -1.2 |
| 35 | 10 | 0 | -0.6 |
| 36 | 14 | 0 | -0.3 |
| 37 | 15 | 0 | 0.0 |
| 38 | 16 | 0 | -0.6 |
| 39 | 17 | 0 | -0.3 |
| 40 | 14 | 0 | -0.3 |
| 41 | 15 | 0 | 0.0 |
| 42 | 16 | 0 | -0.6 |
| 43 | 17 | 0 | -0.3 |
| 44 | 14 | 0 | -0.3 |
| 45 | 15 | 0 | 0.0 |
| | | MIN | -1.2 |
| | | MAX | 2.4 |
| | | MEAN | -0.2 |
| | | SD | 0.8 |
| | | Transuranic DCGL _w | 20 |

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SURVEY UNIT 308D-A-002
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B308D (Interior & Exterior)

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308D-A-002
PDS Data Summary

| Total Surface Activity Measurements | | | Removable Activity Measurements | | |
|-------------------------------------|-----------------|-------------------------|----------------------------------|-----------------|-------------------------|
| | 45 | 47 | | 45 | 47 |
| | Number Required | Number Obtained | | Number Required | Number Obtained |
| MIN | -8.7 | dpm/100 cm ² | MIN | -0.6 | dpm/100 cm ² |
| MAX | 75.5 | dpm/100 cm ² | MAX | 5.8 | dpm/100 cm ² |
| MEAN | 29.8 | dpm/100 cm ² | MEAN | 0.9 | dpm/100 cm ² |
| STD DEV | 23.0 | dpm/100 cm ² | STD DEV | 1.3 | dpm/100 cm ² |
| TRANSURANIC DCGL _w | 100 | dpm/100 cm ² | TRANSURANIC DCGL _w | 20 | dpm/100 cm ² |

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**SURVEY UNIT 308D-A-002
TSA - DATA SUMMARY**

| | | | | | |
|-------------------------------|----------|----------|----------|----------|----------|
| Manufacturer: | NE Tech | NE Tech | NE Tech | NE Tech | NE Tech |
| Model: | DP-6 | DP-6 | DP-6 | DP-6 | DP-6 |
| Instrument ID#: | 1 | 2 | 3 | 5 | 6 |
| Serial #: | 3104 | 3106 | 1241 | 3104 | 2344 |
| Cal Due Date: | 5/11/03 | 4/4/03 | 5/11/03 | 5/11/03 | 1/17/03 |
| Analysis Date: | 12/11/02 | 12/11/02 | 12/11/02 | 12/12/02 | 12/13/02 |
| Alpha Eff. (c/d): | 0.214 | 0.230 | 0.213 | 0.214 | 0.222 |
| Alpha Bkgd (cpm) | 2.0 | 1.3 | 1.3 | 0.7 | 1.3 |
| Sample Time (min) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| LAB Time (min) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| MDC (dpm/100cm ²) | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 |

| | | |
|-------------------------------|----------|---------|
| Manufacturer: | NE Tech | NE Tech |
| Model: | DP-6 | DP-6 |
| Instrument ID#: | 7 | 15 |
| Serial #: | 3104 | 1261 |
| Cal Due Date: | 5/11/03 | 6/19/03 |
| Analysis Date: | 12/13/02 | 1/8/03 |
| Alpha Eff. (c/d): | 0.214 | 0.207 |
| Alpha Bkgd (cpm) | 0.7 | 0.0 |
| Sample Time (min) | 1.5 | 1.5 |
| LAB Time (min) | 1.5 | 1.5 |
| MDC (dpm/100cm ²) | 48.0 | 48.0 |

| Sample Location Number | Instrument ID#: | Sample Gross Counts (cpm) | Sample Gross Activity (dpm/100cm ²) | LAB Gross Counts (cpm) | LAB Gross Activity (dpm/100cm ²) | Sample Net Activity (dpm/100cm ²) ^{1,2} |
|------------------------|-----------------|---------------------------|---|------------------------|--|--|
| 1 | 1 | 10.0 | 46.7 | 2.0 | 9.3 | 31.9 |
| 2 | 15 | 4.7 | 22.7 | 2.0 | 9.7 | 7.9 |
| 3 | 3 | 10.7 | 50.2 | 5.3 | 24.9 | 35.4 |
| 4 | 2 | 12.0 | 52.2 | 4.0 | 17.4 | 37.3 |
| 5 | 3 | 4.7 | 22.1 | 5.3 | 24.9 | 7.2 |
| 6 | 3 | 13.3 | 62.4 | 5.3 | 24.9 | 47.6 |
| 7 | 3 | 9.3 | 43.7 | 2.0 | 9.4 | 28.8 |
| 8 | 3 | 14.7 | 69.0 | 0.7 | 3.3 | 54.2 |
| 9 | 2 | 2.7 | 11.7 | 2.7 | 11.7 | -3.1 |
| 10 | 3 | 7.3 | 34.3 | 5.3 | 24.9 | 19.4 |
| 11* | 3 | 18.0 | 84.5 | 5.3 | 24.9 | 69.7 |
| 12 | 3 | 8.0 | 37.6 | 5.3 | 24.9 | 22.7 |
| 13 | 3 | 12.7 | 59.6 | 1.3 | 6.1 | 44.8 |
| 14 | 3 | 12.0 | 56.3 | 1.3 | 6.1 | 41.5 |
| 15 | 15 | 13.3 | 64.3 | 0.7 | 3.4 | 49.4 |
| 16 | 1 | 12.7 | 59.3 | 2.7 | 12.6 | 44.5 |
| 17 | 1 | 9.3 | 43.5 | 3.3 | 15.4 | 28.6 |
| 18 | 1 | 16.0 | 74.8 | 6.0 | 28.0 | 59.9 |
| 19 | 1 | 10.7 | 50.0 | 5.3 | 24.8 | 35.2 |
| 20 | 1 | 12.0 | 56.1 | 2.7 | 12.6 | 41.3 |
| 21 | 1 | 10.7 | 50.0 | 4.0 | 18.7 | 35.2 |
| 22 | 1 | 2.0 | 9.3 | 2.0 | 9.3 | -5.5 |
| 23 | 1 | 2.7 | 12.6 | 4.7 | 22.0 | -2.2 |
| 24 | 2 | 4.7 | 20.4 | 4.7 | 20.4 | 5.6 |
| 25 | 2 | 2.7 | 11.7 | 2.7 | 11.7 | -3.1 |
| 26 | 1 | 4.7 | 22.0 | 1.3 | 6.1 | 7.6 |
| 27 | 1 | 8.7 | 40.7 | 6.7 | 31.3 | 25.8 |
| 28 | 1 | 1.3 | 6.1 | 3.3 | 15.4 | -8.7 |
| 29 | 2 | 6.0 | 26.1 | 6.0 | 26.1 | 0.3 |
| 30 | 2 | 6.0 | 26.1 | 0.7 | 3.0 | 11.3 |

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**SURVEY UNIT 308D-A-002
TSA - DATA SUMMARY**

| Sample Location Number | Instrument ID#: | Sample Gross Counts (cpm) | Sample Gross Activity (dpm/100cm2) | LAB Gross Counts (cpm) | LAB Gross Activity (dpm/100cm2) | Sample Net Activity (dpm/100cm2) ^{1,2} |
|------------------------|-----------------|---------------------------|------------------------------------|------------------------|---------------------------------|---|
| 33 | 5 | 14.0 | 65.4 | 1.3 | 6.1 | 50.6 |
| 34 | 5 | 8.0 | 37.4 | 4.7 | 22.0 | 22.6 |
| 35 | 5 | 19.3 | 90.2 | 4.7 | 22.0 | 75.4 |
| 36 | 5 | 5.3 | 24.8 | 3.3 | 15.4 | 9.9 |
| 37 | 6 | 5.3 | 23.9 | 0.7 | 3.2 | 9.0 |
| 38 | 7 | 12.0 | 56.1 | 2.0 | 9.3 | 41.3 |
| 39 | 6 | 6.7 | 30.2 | 1.3 | 5.9 | 15.4 |
| 40 | 6 | 6.7 | 30.2 | 3.3 | 14.9 | 15.4 |
| 41 | 7 | 7.3 | 34.1 | 2.7 | 12.6 | 19.3 |
| 42 | 7 | 15.3 | 71.5 | 2.7 | 12.6 | 56.7 |
| 43 | 6 | 8.7 | 39.2 | 2.0 | 9.0 | 24.4 |
| 44 | 7 | 13.3 | 62.1 | 0.7 | 3.3 | 47.3 |
| 45 | 6 | 6.7 | 30.2 | 7.3 | 32.9 | 15.4 |
| 46 | 15 | 18.7 | 90.3 | 0.7 | 3.4 | 75.5 |
| 47 | 15 | 17.7 | 85.5 | 2.7 | 13.0 | 70.7 |

1 - Average LAB used to subtract from Gross Sample Activity

2 - The initial Sample Net Activity for location 11 was 123.1 dpm/100cm2. This location was re-surveyed after a decay period.

Re-survey results are reported.

| | |
|--------------------------------|--------------------|
| 14.8 | Sample LAB Average |
| MIN | -8.7 |
| MAX | 75.5 |
| MEAN | 29.8 |
| SD | 23.0 |
| Transuranic DCGL _{sw} | 100 |

QC Measurements

| | | | | | | |
|------|---|------|------|-----|------|------|
| 11QC | 6 | 20.0 | 90.1 | 4.7 | 21.2 | 72.9 |
| 8QC | 7 | 14.7 | 68.7 | 2.0 | 9.3 | 51.5 |
| 35QC | 6 | 14.7 | 66.2 | 4.7 | 21.2 | 49.0 |

1 - Average QC LAB used to subtract from Gross Sample Activity

| | |
|--------------------------------|----------------|
| 17.2 | QC LAB Average |
| MIN | 49.0 |
| MAX | 72.9 |
| MEAN | 57.8 |
| Transuranic DCGL _{sw} | 100 |

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**SURVEY UNIT 308D-A-002
RSC - DATA SUMMARY**

| | | | | | | |
|-------------------------------|----------|----------|----------|----------|----------|----------|
| Manufacturer: | Eberline | Eberline | Eberline | Eberline | Eberline | Eberline |
| Model: | SAC-4 | SAC-4 | SAC-4 | SAC-4 | SAC-4 | SAC-4 |
| Instrument ID#: | 10 | 11 | 12 | 13 | 14 | 11 |
| Serial #: | 959 | 833 | 963 | 952 | 959 | 833 |
| Cal Due Date: | 1/18/03 | 2/28/03 | 1/3/03 | 1/31/03 | 1/18/03 | 2/28/03 |
| Analysis Date: | 12/16/02 | 12/16/02 | 12/16/02 | 12/16/02 | 12/16/02 | 1/8/03 |
| Alpha Eff. (c/d): | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Alpha Bkgd (cpm) | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 |
| Sample Time (min) | 2 | 2 | 2 | 2 | 2 | 2 |
| Bkgd Time (min) | 10 | 10 | 10 | 10 | 10 | 10 |
| MDC (dpm/100cm ²) | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 |

| Sample Location Number | Instrument ID# | Gross Counts (cpm) | Net Activity (dpm/100 cm ²) |
|------------------------|----------------|--------------------|---|
| 1 | 10 | 0 | -0.3 |
| 2 | 16 | 0 | 0.0 |
| 3 | 11 | 1 | 0.9 |
| 4 | 12 | 0 | -0.3 |
| 5 | 13 | 2 | 3.0 |
| 6 | 10 | 1 | 1.2 |
| 7 | 11 | 2 | 2.4 |
| 8 | 12 | 0 | -0.3 |
| 9 | 13 | 1 | 1.5 |
| 10 | 10 | 0 | -0.3 |
| 11 | 11 | 0 | -0.6 |
| 12 | 12 | 1 | 1.2 |
| 13 | 13 | 0 | 0.0 |
| 14 | 10 | 1 | 1.2 |
| 15 | 16 | 0 | 0.0 |
| 16 | 12 | 1 | 1.2 |
| 17 | 13 | 1 | 1.5 |
| 18 | 10 | 2 | 2.7 |
| 19 | 11 | 0 | -0.6 |
| 20 | 12 | 0 | -0.3 |
| 21 | 13 | 0 | 0.0 |
| 22 | 10 | 0 | -0.3 |
| 23 | 11 | 1 | 0.9 |
| 24 | 12 | 2 | 2.7 |
| 25 | 13 | 0 | 0.0 |
| 26 | 10 | 2 | 2.7 |
| 27 | 11 | 1 | 0.9 |
| 28 | 12 | 0 | -0.3 |
| 29 | 13 | 0 | 0.0 |
| 30 | 10 | 0 | -0.3 |
| 31 | 11 | 1 | 0.9 |
| 32 | 12 | 4 | 5.8 |
| 33 | 13 | 2 | 3.0 |
| 34 | 10 | 1 | 1.2 |
| 35 | 11 | 2 | 2.4 |
| 36 | 12 | 0 | -0.3 |
| 37 | 14 | 0 | 0.0 |
| 38 | 14 | 1 | 1.2 |
| 39 | 14 | 0 | 0.0 |
| 40 | 14 | 2 | 3.0 |

**SURVEY UNIT 308D-A-002
RSC - DATA SUMMARY**

| Sample Location Number | Instrument ID# | Gross Counts (cpm) | Net Activity (dpm/100 cm ²) |
|------------------------|----------------|----------------------------------|---|
| 41 | 14 | 1 | 1.5 |
| 42 | 14 | 1 | 1.5 |
| 43 | 14 | 1 | 1.5 |
| 44 | 14 | 0 | 0.0 |
| 45 | 14 | 1 | 0.9 |
| 46 | 16 | 0 | -0.6 |
| 47 | 16 | 1 | 1.5 |
| | | MIN | -0.6 |
| | | MAX | 5.8 |
| | | MEAN | 0.9 |
| | | SD | 1.3 |
| | | Transuranic DCGL _w | 20 |

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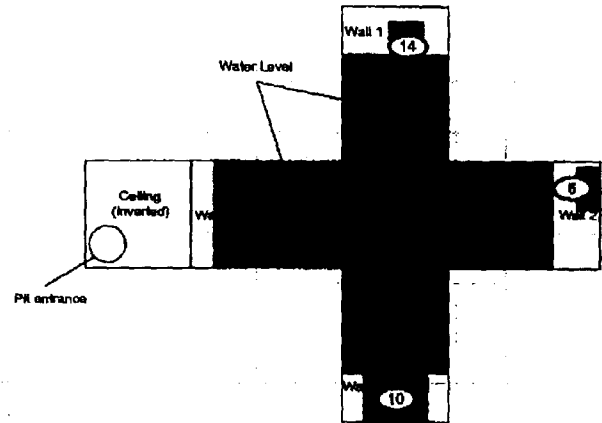
PRE-DEMOLITION SURVEY FOR B308D

| | | |
|--|-----------------------------|-------------------|
| Survey Area: 2 | Survey Unit: 308D-A-002 | Classification: 3 |
| Building: 308D | | |
| Survey Unit Description: Interior & Exterior of Building | | |
| Total Area: 99 sq. m. | Total Floor Area: 11 sq. m. | |
| | Total Roof Area: 18 sq. m. | |

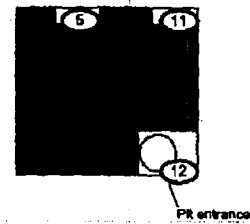
PAGE 1 OF 1

PAGE 1 OF 1

308D PIT



308D PAD



SURVEY MAP LEGEND

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N
↑

1 inch = 12 feet 1 gnd sq. = 1 sq. m.

Prepared by: GIS Dept. 303-986-7707

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MAP ID: 02-0355/308D-SC

January 15, 2003

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ATTACHMENT D

Chemical Data Summaries and Sample Maps

Beryllium Data Summary

| Sample Number | Room | Map Survey Point Location | Sample Location | Result (2g/100 cm ²) |
|-----------------------|------|---------------------------|--|----------------------------------|
| Building 308 B | | | | |
| 308B-12112002-315-101 | Main | 1 | Top of HVAC housing, west wall | <0.1 |
| 308B-12112002-315-102 | Main | 2 | Top of PDB-1-308B electrical panel, south wall | <0.1 |
| 308B-12112002-315-103 | Main | 3 | On yellow metal walkway | <0.1 |
| 308B-12112002-315-104 | Main | 4 | Top of gray ITW PVC pipe | <0.1 |
| 308B-12112002-315-105 | Main | 5 | Top of PD-1-308B electrical panel, north wall | <0.1 |
| 308B-01142003-315-106 | Main | 6 | Inside Valve V-1021-11 | <0.1 |
| 308B-01142003-315-107 | Main | 7 | Inside V 10215 | <0.1 |
| 308B-01142003-315-108 | Main | 8 | Inside V 1021-10 | <0.1 |
| 308B-01142003-315-109 | Main | 9 | Inside V 3042-5 | <0.1 |
| 308B-01142003-315-110 | Main | 10 | Inside V 3042-10 | <0.1 |
| Building 308 D | | | | |
| 308D-01142003-315-101 | Main | 1 | Inside "Spears" valve | <0.1 |
| 308D-01142003-315-102 | Main | 2 | Inside EX1M1 | <0.1 |
| 308D-01142003-315-103 | Main | 3 | Inside GR65-45-12 | <0.1 |
| 308D-01142003-315-104 | Main | 4 | Inside V 3049-1 | <0.1 |
| 308D-01142003-315-105 | Main | 5 | Inside V3049-2 | <0.1 |
| 308D-12112002-315-106 | Main | 6 | Edge of entrance to pit | <0.1 |
| 308D-12112002-315-107 | Main | 7 | Top of electrical panel, west wall | <0.1 |
| 308D-12112002-315-108 | Main | 8 | Top of electrical junction box, south wall | <0.1 |
| 308D-12112002-315-109 | Main | 9 | Top of PVC pipe | <0.1 |
| 308D-12112002-315-110 | Main | 10 | Top of metal electrical light housing | <0.1 |

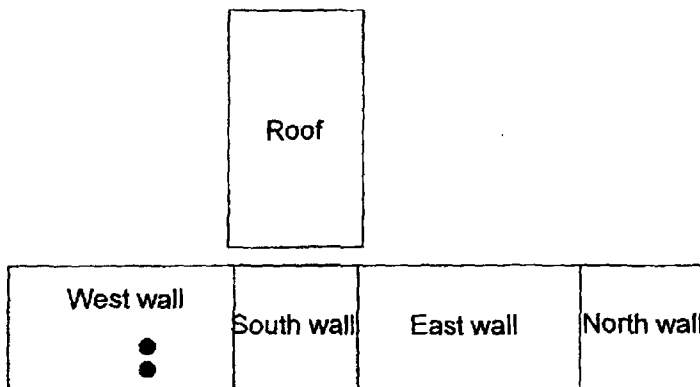
40

CHEMICAL SAMPLE MAP

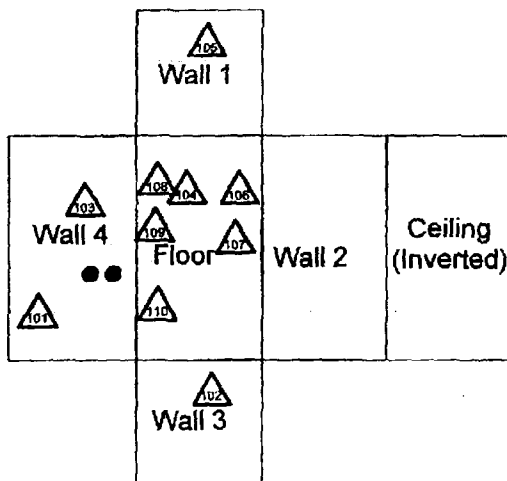
Building: 308B Interior & Exterior

PAGE 1 OF 1

308B Exterior



308B Interior

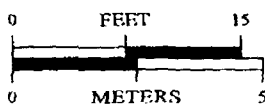


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



1 inch = 12 feet 1 grid sq. = 1 sq. m.

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Prepared for:

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MAP ID: 02-0355/308B-BE

December 16, 2002

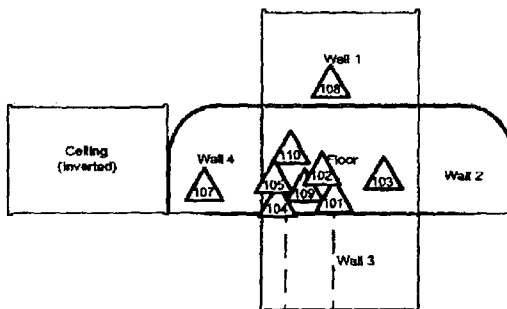
41

CHEMICAL SAMPLE MAP

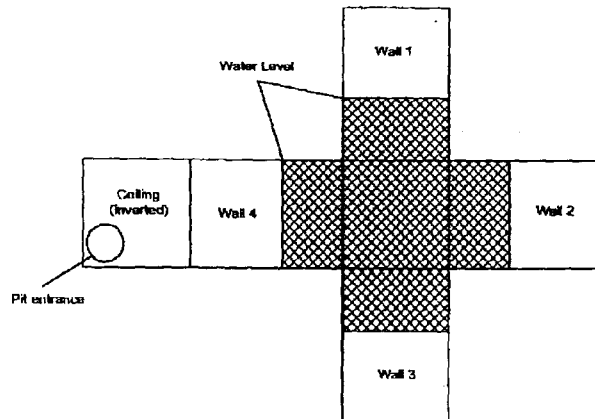
Building: 308D Interior & Exterior

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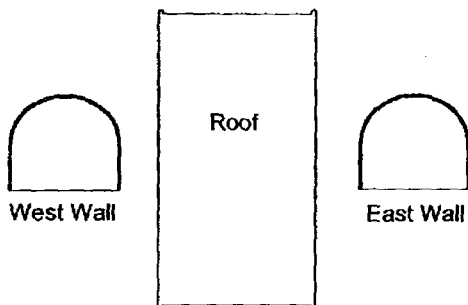
308D Interior



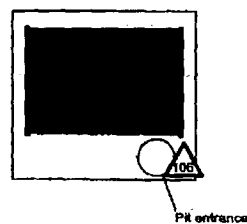
308D PIT



308D Exterior



308D PAD

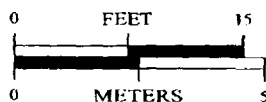


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CFRCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



1 inch = 12 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
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MAP ID: 02-0355/308D-BE

January 15, 2003

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ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium.)

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1 and beryllium in E-2. A data completeness summary for all results is given in Table E-3.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project File. The report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Buildings 308B and 308D based on the conservatism of the Transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic DCGL_w (100 dpm/100cm²) and the Uranium DCGL_w (5,000 dpm/100cm²) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design for each survey unit performed per PDS requirements was optimized by checking actual measurement results acquired during pre-demolition surveys against the model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

DQA SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable certainties.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable DCGL unrestricted release levels confirming a Type 1 facility classification. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable Radiological Safety Practice procedures, survey units were properly designed and bounded, and instrument performance and calibration was verified as satisfactory. All results were less than the applicable Transuranic DCGL_w (100 dpm/100cm²) and the Uranium DCGL_w (5,000 dpm/100cm²), therefore, all results meet the PDS unrestricted release criteria.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facility. On this basis, Buildings 308B and 308D meet the unrestricted release criteria with the confidences stated herein.

Table E-1 V&V of Radiological Surveys For Buildings 308B and 308D

| V&V CRITERIA, RADIOLOGICAL SURVEYS | | K-H RSP 16.00 Series MARSSIM (NUREG-1575) | | COMMENTS |
|------------------------------------|---|---|---------------|---|
| QUALITY REQUIREMENTS | | | | |
| ACCURACY | Parameters | Measure | frequency | Multi-point calibration through the measurement range encountered in the field; programmatic records. Performed daily/within range. All local area backgrounds were within expected ranges (i.e., no elevated anomalies.) N/A Random w/ statistical confidence. Random and biased measurement locations controlled/mapped to ±1m. Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats. Use of standardized engineering units in the reporting of measurement results. See Table E-3 for details. MDAs ≤ 50% DCGL _w |
| | initial calibrations | 90%<x<110% | ≥1 | |
| | daily source checks | 80%<x<120% | ≥1/day | |
| | local area background: Field | typically < 10 dpm | ≥1/day | |
| PRECISION | field duplicate measurements for TSA | ≥5% of real survey points | ≥10% of reals | |
| REPRESENTATIVENESS | MARSSIM methodology: Survey Units 308B-A-001 and 308D-A-002 | statistical and biased | NA | |
| | Survey Maps | NA | NA | |
| | Controlling Documents (Characterization Pkg; RSPs) | qualitative | NA | |
| COMPARABILITY | units of measure | dpm/100cm ² | NA | |
| COMPLETENESS | Plan vs. Actual surveys usable results vs. unusable | >95% >95% | NA | |
| SENSITIVITY | detection limits | TSA: ≤50 dpm/100cm ² RA: ≤10 dpm/100cm ² | all measures | |

Table E-2 V&V of Beryllium Results - Buildings 308B and 308D

| V&V CRITERIA, CHEMICAL ANALYSES | | DATA PACKAGE | | COMMENTS |
|---------------------------------|---|---------------------------------------|-----------------------------------|---|
| BERYLLIUM | Prep: NMAM 7300 METHOD: OSHA ID-125G | LAB ---> | Johns Manville, Littleton, Co. | |
| QUALITY REQUIREMENTS | | RIN ----> | RIN03Z0754 RIN03Z0580 | No qualifications significant enough to change project decisions, i.e., classification of Type 1 facility confirmed. All results were below associated action levels. |
| ACCURACY | | Measure | frequency | |
| | Calibrations | | | |
| | Initial | linear calibration | ≥1 | |
| | Continuing | 80%<%R<120% | ≥1 | |
| | LCS/MS | 80%<%R<120% | ≥1 | |
| | Blanks - lab & field | <MDL | ≥1 | |
| PRECISION | interference check std (ICP) | NA | NA | |
| | LCSD | 80%<%R<120% (RPD<20%) | ≥1 | |
| | field duplicate | all results < RL | ≥1 | |
| REPRESENTATIVENESS | COC | Qualitative | NA | |
| | hold times/preservation | Qualitative | NA | |
| | Controlling Documents (Plans, Procedures, maps, etc.) | Qualitative | NA | |
| COMPARABILITY | measurement units | ug/100cm ² | NA | |
| COMPLETENESS | Plan vs. Actual samples | >95% | NA | |
| SENSITIVITY | usable results vs. unusable | >95% | NA | |
| | detection limits | MDL of 0.012 ug/100cm ² | all measures | |

Table E-3 Data Completeness Summary for Buildings 308B and 308D

| ANALYTE | Building/Area /Unit | Sample Number Planned (Real & QC) ^A | Sample Number Taken (Real & QC) | Project Decisions (Conclusions) & Uncertainty | Comments (RIN, Analytical Method, Qualifications, etc.) |
|--------------|--|---|---|--|--|
| Beryllium | Bldg. 308B | 5 biased (interior) | 10 biased (interior) | No contamination found at any location | OSHA ID-125G RIN03Z0754: 308B-sample numbers 106-110 RIN03Z0580: 308B-sample numbers 101-105 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²). |
| Beryllium | Bldg. 308D | 5 biased (interior) | 10 biased (interior) | No contamination found at any location | OSHA ID-125G RIN03Z0754: 308D-sample numbers 101-105 RIN03Z0580: 308D-sample numbers 106-110 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²). |
| Radiological | Survey Unit: 308B-A-001 Bldg. 308B (interior and exterior) | 30 & TSA (15 random & 15 biased) 3 QC TSA and 30 & Smears (15 random & 15 biased) and 15 & TSA and 15 & Smears Equipment 10% minimum scan | 30 & TSA (15 random & 15 biased) 3 QC TSA and 30 & Smears (15 random & 15 biased) and 15 & TSA and 15 & Smears Equipment 10% minimum scan | No contamination at any location; all values below unrestricted release levels | Transuranic and/or Uranium DCGLE, as applicable. |

Table E-3 Data Completeness Summary for Buildings 308B and 308D

| ANALYTE | Building/Area /Unit | Sample Number Planned (Real & QC) ^A | Sample Number Taken (Real & QC) | Project Decisions (Conclusions) & Uncertainty | Comments (RIN, Analytical Method, Qualifications, etc.) |
|--------------|--|---|--|--|--|
| Radiological | Survey Unit: 308D-A-002 Bldg. 308D (interior and exterior) | 30 & TSA (15 random & 15 biased) 3 QC TSA & 30 & Smears (15 random & 15 biased) & 15 & TSA and 15 & Equipment 10% minimum scan | 30 & TSA (15 random & 15 biased) 3 QC TSA and 30 & Smears (15 random & 15 biased) and 17 & TSA and 17 & Smears Equipment 10% minimum scan | No contamination at any location; all values below unrestricted release levels | Transuranic and/or Uranium DCGL _w as applicable. Elevated activity identified at location #11 (123.1 dpm/100cm ²) greater than the transuranic DCGL _w (100 dpm/100cm ²). Area was allowed to decay and re-surveyed. Re-survey result was less than the transuranic DCGL _w and is the value reported in the TSA data summary. |

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